WHAT IS CLAIMED IS:

1. A control device for hybrid vehicles, comprising:

a motor drivingly connected to an engine,

a transmission that transmits output torques of the engine and the motor to drive wheels; and

a controller that performs torque reduction control by which an input torque to the transmission is reduced, wherein when torque reduction control is consecutively performed, the input torque is reduced at least once by a negative torque output from the motor.

2. The control device for hybrid vehicles according to claim 1, wherein the controller:

judges a presence and an absence of a coast condition, in which the vehicle is caused to perform an inertial running, when the vehicle is running;

judges whether there is a speed-change with the transmission; and

performs, by the negative torque output from the motor, at least one of a first engine-torque inhibitory control at a start of driving of the engine to respond to a judgment of a coast condition and a second engine-torque inhibitory control at a time of the speed-change after the start of driving of the engine to respond to a detection of a beginning of the speed-change performed.

3. The control device for hybrid vehicles according to claim 2, wherein when the controller judges an out of coast condition, the controller:

acquires a maximum torque output value that can be output from the motor;

calculates a necessary motor torque command value; and

carries out the first engine-torque inhibitory control on the basis of a comparison between the maximum torque output value and the necessary motor torque command value with only the negative torque output from the motor, or an addition of a reduction of output of the engine and the negative torque output from the motor.

4. The control device for hybrid vehicles according to claim 3, wherein when the controller judges the beginning of the speed-change after the first engine-torque inhibitory control is carried out, the controller:

acquires the maximum torque output value that can be output from the motor;

calculates the necessary motor torque command value; and

carries out the second engine-torque inhibitory control on the basis of the comparison between the maximum torque output value and the necessary motor torque commend value with only the negative torque output from the motor, or the addition of the reduction of output of the engine and the negative torque output from the motor.

5. The control device for hybrid vehicles according to claim 2, wherein the transmission comprises:

a hydraulic transmission that receives the output torques of the engine and the motor; and

an automatic transmission mechanism that receives the output torques through the hydraulic transmission, wherein the controller judges the presence and absence of the coast condition based on changes in rotational speed or changes in torque on an input side and an output side of the hydraulic transmission.

6. The control device for hybrid vehicles according to claim 5, wherein, when the negative torque is generated by the motor, the controller executes a processing for reducing torque to the engine to assist a torque control due to the negative torque from the motor.

7. The control device for hybrid vehicles according to claim 6, wherein the transmission comprises:

the hydraulic transmission having a lock-up clutch capable of providing a direct connection between the input side to receive output torques of the engine and the motor, and the output side to transmit the output torques to a downstream side of power transmission; and

the automatic transmission mechanism to receive the output torques through the hydraulic transmission, wherein the controller judges a presence of the coast condition when a rotational speed on the output side is larger than an engine speed on the input side, when the lock-up clutch is OFF, or presence of the coast condition when an engine torque on the input side is below a predetermined value when the lock-up clutch is ON.

8. A method of controlling a motor drivingly connected to an engine and a transmission that transmits output torques of the engine and the motor to drive wheels, comprising:

performing torque reduction control by which an input torque to the transmission is reduced, wherein when torque reduction control is consecutively performed, the input torque is reduced at least once by a negative torque output from the motor.

9. The method of claim 8, comprising:

judging a presence and an absence of a coast condition, in which the vehicle is caused to perform an inertial running, when the vehicle is running;

judging whether there is a speed-change with the transmission; and

performing, by the negative torque output from the motor, at least one of a first engine-torque inhibitory control at a start of driving of the engine to respond to a judgment of a coast condition and a second engine-torque inhibitory control at a time of the speed-change after the start of driving of the engine to respond to a detection of a beginning of the speed-change performed.

10. The method of claim 9, wherein when an out of coast condition is judged, comprising:

acquiring a maximum torque output value that can be output from the motor;

calculating a necessary motor torque command value; and

carrying out the first engine-torque inhibitory control on the basis of a comparison between the maximum torque output value and the necessary motor torque command value with only the negative torque output from the motor, or an addition of a reduction of output of the engine and the negative torque output from the motor.

11. The method of claim 10, wherein when the beginning of the speed-change after the first engine-torque inhibitory control is carried out is judged, comprising:

acquiring the maximum torque output value that can be output from the motor;

calculating the necessary motor torque command value; and

carrying out the second engine-torque inhibitory control on the basis of the comparison between the maximum torque output value and the necessary motor torque commend value with only the negative torque output from the motor, or the addition of the reduction of output of the engine and the negative torque output from the motor.

12. The method of claim 9, wherein the transmission comprises a hydraulic transmission that receives the output torques of the engine and the motor and an automatic transmission mechanism that receives the output torques through the hydraulic transmission, comprising:

judging the presence and absence of the coast condition based on changes in rotational speed or changes in torque on an input side and an output side of the hydraulic transmission.

13. The method of claim 12, wherein when the negative torque is generated by the motor, comprising:

executing a processing for reducing torque to the engine to assist a torque control due to the negative torque from the motor.

14. The method of claim 13, wherein the transmission comprises the hydraulic transmission having a lock-up clutch capable of providing a direct connection between the input side to receive output torques of the engine and the motor, and the output side to transmit the output torques to a downstream side of power transmission and the automatic transmission mechanism to receive the output torques through the hydraulic transmission, comprising:

judging a presence of the coast condition when a rotational speed on the output side is larger than an engine speed on the input side, when the lock-up clutch is OFF, or presence of the coast condition when an engine torque on the input side is below a predetermined value when the lock-up clutch is ON.

15. A control device for hybrid vehicles, comprising:

means for transmitting output torques of an engine and a motor to drive wheels; and

means for performing torque reduction control by which an input torque to the means for transmitting is reduced, wherein when torque reduction control is consecutively performed, the input torque is reduced at least once by a negative torque output from the motor.

16. The control device for hybrid vehicles according to claim 15, wherein the means for performing torque reduction control:

judges a presence and an absence of a coast condition, in which the vehicle is caused to perform an inertial running, when the vehicle is running;

judges whether there is a speed-change with the means for transmitting; and

performs, by the negative torque output from the motor, at least one of a first engine-torque inhibitory control at a start of driving of the engine to respond to a judgment of a coast condition and a second engine-torque inhibitory control at a time of the speed-change after the start of driving of the engine to respond to a detection of a beginning of the speed-change performed.

17. The control device for hybrid vehicles according to claim 16, wherein when the means for performing torque reduction control judges an out of coast condition, the means for performing torque reduction control:

acquires a maximum torque output value that can be output from the motor;

calculates a necessary motor torque command value; and

carries out the first engine-torque inhibitory control on the basis of a comparison between the maximum torque output value and the necessary motor torque command value with only the negative torque output from the motor, or an addition of a reduction of output of the engine and the negative torque output from the motor.

18. The control device for hybrid vehicles according to claim 17, wherein when the means for performing torque reduction control judges the beginning of the speed-change after the first engine-torque inhibitory control is carried out, the means for performing torque reduction control:

acquires the maximum torque output value that can be output from the motor;

calculates the necessary motor torque command value; and

carries out the second engine-torque inhibitory control on the basis of the comparison between the maximum torque output value and the necessary motor torque commend value with only the negative torque output from the motor, or the addition of the reduction of output of the engine and the negative torque output from the motor.

19. The control device for hybrid vehicles according to claim 16, wherein the means for transmitting comprises:

a first means of receiving the output torques of the engine and the motor; and

a second means of receiving the output torques through the first means of receiving, wherein the means for performing torque reduction control judges the presence and absence of the coast condition based on changes in rotational speed or changes in torque on an input side and an output side of the first means of receiving.

20. The control device for hybrid vehicles according to claim 19, wherein, when the negative torque is generated by the motor, the means for performing torque reduction control executes a processing for reducing torque to the engine to assist a torque control due to the negative torque from the motor.

21. The control device for hybrid vehicles according to claim 20, wherein the means for transmitting comprises:

the first means of receiving having a lock-up clutch capable of providing a direct connection between the input side to receive output torques of the engine and the motor, and the output side to transmit the output torques to a downstream side of power transmission; and

the second means of receiving to receive the output torques through the hydraulic transmission, wherein the means for performing torque reduction control judges a

presence of the coast condition when a rotational speed on the output side is larger than an engine speed on the input side, when the lock-up clutch is OFF, or presence of the coast condition when an engine torque on the input side is below a predetermined value when the lock-up clutch is ON.